

## WELCOME TO DOE'S *RCRA ORIENTATION FOR FACILITY MANAGERS* COURSEWARE

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**Background** This module comprises one component of courseware materials that were developed by DOE's Office of Environmental Policy and Assistance, RCRA/CERCLA Division, EH-413, in response to a request from the Deputy Assistant Secretary for Nuclear and Facility Safety (EH-3). The original course was titled *RCRA Orientation for Nuclear and Facility Safety* and was presented on March 5, 1997, at Germantown, MD. Presentation materials were derived from the more formal three-day course titled DOE's *RCRA Orientation Workshop*, which was developed by EH-413 under a joint funding venture that included the Savannah River Site and the Albuquerque Operations Office.

**Courseware Content** Although derived from the three-day workshop, DOE's *RCRA Orientation for Nuclear and Facility Safety* (now titled *RCRA Orientation for Facility Managers*) was expanded by developing two new modules to meet the needs of Nuclear Safety Managers. One of the new modules (*Corrective Action*) compares and contrasts RCRA closure and corrective action with CERCLA remedial action by using Oak Ridge Reservation as an example of a radioactively contaminated site closed under RCRA, but undergoing remediation under CERCLA. The other module (*Emerging Issues*) offered a snapshot of the emerging regulations that were expected to impact the Department most dramatically. The remaining courseware modules include:

- Introduction to RCRA and Liability Overview,
- Overview of Solid Waste Determination,
- Overview of Hazardous Waste Determination, and
- Permitting.

PDF "Handout" files only, which contain the aforementioned modules, are designed to serve as stand-alone resources and are equipped with: (1) A list of module contents, (2) Module-specific enabling objectives; (3) Self-assessment questions and answers; (4) A module-specific regulatory citation/key word index; and (5) A module-specific cross-link table that identifies hypertext links to additional Internet resources for hazardous waste-related information.

**Using the Courseware Materials** Within the PDF Handout modules, users are encouraged to examine the module's Regulatory-Statutory Citation/Key Word Index to identify the availability and location of topics of interest. In contrast, users can simply "dig-in" and sequentially examine the courseware's content. For less extensive reviews or to download additional course presentation materials as needed, users can return to the [RCRA Orientation for Facility Managers Home Page](#) to access electronic files containing the remaining PDF Handout and/or Vugraph files.

To assist users in accessing additional Internet resources, where possible, module-specific hypertext links have been inserted into select points within each of the six PDF Handout courseware modules. Hypertext links appear in both the slide and notes portions as either *blue italicized text* (the first time a link to a particular resource is offered in a given module) or *green italicized text* (each subsequent link to that same resource) and have been assigned to terms and phases for which additional Internet resources such as other EH-413 guidance documents, other Internet Websites, etc. are available. Upon identifying a highlighted term or phase of interest, users generally can access the additional Internet resources by clicking on the highlighted text, which will then hypertext link to another Internet resource. Additional information for obtaining those resources that are not Internet-accessible as well as the objectives, content and organization, use, list of acronyms, Internet resources, and master index is presented in the [\*Front-End Materials section\*](#) (first section).

**Feedback  
And  
Contacts**

If you have difficulty in downloading or reviewing modules comprising DOE's *RCRA Orientation for Facility Managers*, [contact our Webmaster](#) and please [provide us with feedback](#). If you are interested in attending the three-day *RCRA Orientation Workshop*, please contact the [National Environmental Training Office](#). Additional questions concerning this courseware or the information presented therein may be directed to Atam Sikri of my staff by:

- Calling at (202) 586-1879,
- Faxing messages to (202) 586-0955, or
- Communicating electronically, via Internet, to [atam.sikri@eh.doe.gov](mailto:atam.sikri@eh.doe.gov).



## **Corrective Action -- Module CA**

### **List of Module Contents**

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Corrective Action Module Cross-Links .....	CA-21

### **Additional Resources Cited in this Module (Internet-Accessible Unless Otherwise Noted)**

Types of RCRA Permits, DOE/EH-413/9715; <http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permits.pdf>

RCRA Facility Assessments, DOE/EH-231-014/0794;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf>

RCRA Corrective Action Program Guide (Interim), DOE/EH-0323;  
[http://tis-nt.eh.doe.gov/oepa/guidance/rcra/program/program\\_all.pdf](http://tis-nt.eh.doe.gov/oepa/guidance/rcra/program/program_all.pdf)

Ground-Water Monitoring Under RCRA, DOE/EH-231-039/1193;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/monitor.pdf>

RCRA Corrective Action Permit Requirements and Modifications under Subpart F Regulations,  
DOE/EH-231-022/0793; <http://tis-nt.eh.doe.gov/oepa/guidance/rcra/modif.pdf>

RCRA Ground Water Assessment Plans and Annual Ground Water Quality Assessment Reports at  
Interim Status Facilities, DOE/EH-413-069/0396;  
<http://tis-nt.eh.doe.gov/oepa/guidance/gw/waterreg.pdf>

Closure of Hazardous and Mixed Waste Management Units at DOE Facilities, DOE/EGD(RCRA)-  
002/0690 [Not available on the OEPA Website]

RCRA Clean Closure Equivalency Demonstrations, DOE/EH-231-010/1291;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/equivdem.pdf>

RCRA Corrective Action and Closure, DOE/EH-231-051/0295;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/closur.pdf>

OEPA Environmental Law Summary: Resource Conservation and Recovery Act;  
[http://tis-nt.eh.doe.gov/oepa/law\\_sum/RCRA.HTM](http://tis-nt.eh.doe.gov/oepa/law_sum/RCRA.HTM)

RCRA Corrective Action Definitions Under Subpart F and Proposed Subpart S,  
DOE/EH-231-044/0394; <http://tis-nt.eh.doe.gov/oepa/guidance/rcra/definit.pdf>

RCRA Permitting Guide for Hazardous and Radioactive Mixed Waste Management Facilities,  
DOE/EH(RCRA)9705; [http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit\\_a.pdf](http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit_a.pdf)

RCRA Facility Investigation, DOE/EH-231-046/1194;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf>

RCRA Corrective Action Interim Measures Under the Proposed Subpart S Rule, DOE/EH-231-  
024/0793; <http://tis-nt.eh.doe.gov/oepa/guidance/rcra/interim.pdf>

RCRA Corrective Action Corrective Measure Study, DOE/EH-231-047/1194;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf>

RCRA Corrective Action Corrective Measures Implementation, DOE/EH-231-048/1194;  
<http://tis-nt.eh.doe.gov/oepa/guidance/rcra/implemen.pdf>

A Comparison of the RCRA Corrective Action and CERCLA Remedial Action Processes, DOE/EH-  
0365; <http://tis-nt.eh.doe.gov/oepa/guidance/rcra/rcracomp.pdf>

Preliminary Assessments (PAs) Under CERCLA, DOE/EH-231-016/0593;  
<http://tis-nt.eh.doe.gov/oepa/guidance/cercla/pa.pdf>

Site Inspections (SIs) Under CERCLA, DOE/EH-231-013/0693;  
<http://tis-nt.eh.doe.gov/oepa/guidance/cercla/si.pdf>

Selected EM Cleanup and Compliance Agreements, <http://www.em.doe.gov/ffaa/index.html>

RCRA Post-Closure Permits, DOE/EH-231-021/0593 [NOT available on OEPA Website]

OEPA Focus Area ARAR Website; <http://tis-nt.eh.doe.gov/oepa/arars/>



## ... Permitting Also Triggers Hazardous Waste Corrective Action Requirements



Permitting triggers the hazardous waste corrective action (cleanup) program, which may also affect radioactive waste management and disposal.

By the end of this module, you should be able to:

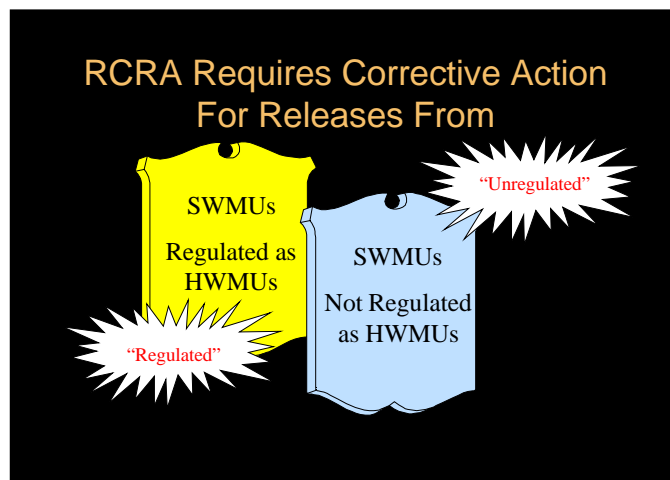
1. Recognize the distinction between a RCRA “regulated” solid waste management unit (SWMU) and an “unregulated” SWMU; [p. CA-3]
2. Recognize that corrective action applies to regulated SWMUs (which include both permitted and unpermitted hazardous waste management units) and unregulated SWMUs; [p.CA-4]
3. Describe the findings of a RCRA Facility Assessment; [p. CA-7]
4. Define interim corrective measures; [p. CA-7]
5. Recognize the parallel process in RCRA and CERCLA; [p. CA-9]
6. Identify how conflicts are resolved when RCRA and CERCLA both apply to a site; [p. CA-10]
7. List the steps required to implement corrective action; [pp. CA-7 to CA-8]
8. Explain what is needed if a unpermitted hazardous waste management unit cannot be decontaminated to meet RCRA clean closure; [p. CA-4]
9. State how RCRA cleanup requirements may be imposed on radioactive waste disposal sites. [pp. CA-12 to CA-14]

## Overview

- Introduce RCRA's cleanup programs
- Compare RCRA's process to that of CERCLA
- Explore an Oak Ridge example of how these authorities apply

This module will:

- introduce the primary cleanup requirements under RCRA,
- compare RCRA corrective action with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, which applies to some past radioactive waste disposal areas in DOE, and
- provide an Oak Ridge example to demonstrate how these various cleanup authorities may apply to radioactive waste disposal sites on DOE installations.



A **RCRA permit** is required for each hazardous waste management unit (HWMU) at a treatment, storage, or disposal facility (TSDF). To obtain a RCRA permit, an operating hazardous waste management facility must provide information to the U.S. Environmental Protection Agency (EPA) on whether any of its SWMUs\*, whether closed or in active use, are releasing hazardous constituents. Owners and operators of TSDFs are required to take corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any **SWMU** at the facility, regardless of when waste was placed in the unit.

**Regulated** SWMUs include any surface impoundment, waste pile, land treatment unit, or landfill that received waste after July 26, 1982, regardless of whether the facility owner/operator obtained a permit for the activity.

**Unregulated** SWMUs are continuous process releases or disposal sites that received waste before July 26, 1982.

\* A solid waste management unit can be any discernible unit including any tank, lagoon, waste pile, or other unit where any solid waste was placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste and from which hazardous constituents are being released.

RCRA **Corrective Action** Applies To  
Regulated SWMU, Which Include:

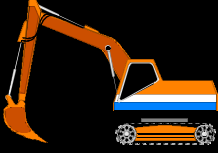
- Permitted HWMUs that release waste constituents to the environment (e.g., landfills and surface impoundments) and
- Unpermitted HWMUs that are taken out of service rather than being permitted (closure post-closure care).



**Permitted HWMUs:** To obtain a RCRA permit for a HWMU (such as Envirocare's Utah facility), the facility owner/operator must either establish a **groundwater monitoring program** as a part of the permit application or adequately explain in the application why groundwater monitoring is not necessary for the particular unit (40 CFR 270.14, 40 CFR 264 Subpart F). After the permit is issued, the owner/operator must conduct the detection monitoring program. If groundwater parameters established in the permit are exceeded, the owner/operator must conduct compliance monitoring. The owner/operator must implement **corrective action under 40 CFR 264.100** to ensure that the regulated unit complies with the groundwater protection standard in 40 CFR 264.92. These corrective action provisions apply to the particular hazardous waste management unit that was identified as the regulated unit in the permit.


**Unpermitted HWMU:** If hazardous waste was intentionally or unintentionally disposed of in a unit after July 26, 1982 (or after the effective date for newly identified waste), corrective action may also be required. In such a case, the owner/operator probably does not want to manage the unit as a permitted HWMU. Nevertheless, some permit requirements apply [40 CFR 265.1(b)]. Rather than obtaining a permit, the owner/operator must **close the unit** in compliance with hazardous waste management requirements. If the unit cannot be completely **decontaminated**, the owner/operator must obtain a hazardous waste **post-closure care permit**. Such a permit requires groundwater monitoring and corrective action, where necessary to meet the groundwater protection standard.





### ... And Unregulated SWMUs

- 3004(u) gives EPA the authority to require corrective action for past releases
  - applies to all facilities seeking a permit
  - RCRA permits contain compliance schedules for corrective action
- 3004(v) also gives authority to require corrective action beyond facility boundary
- 3008(h) provides for corrective action at interim-status facilities

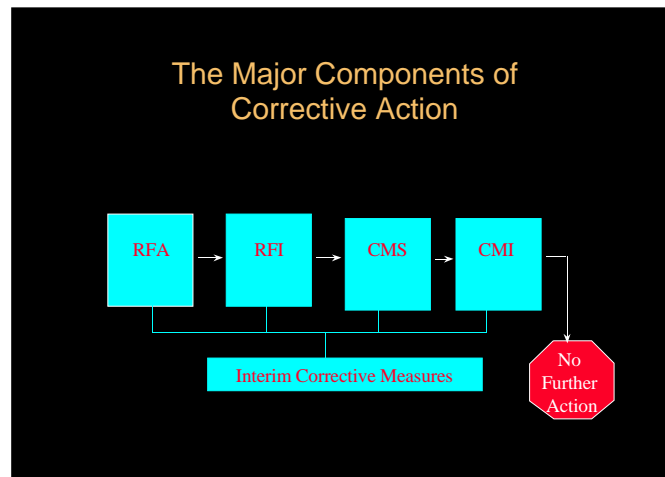


The Hazardous and Solid Waste Amendments (*HSWA*) of 1984 introduced additional corrective action authorities to address releases from SWMUs that are not otherwise RCRA-regulated. Therefore, HSWA necessitated making the distinction between “*regulated*” and “*unregulated*” SWMUs.

“Regulated” SWMUs are ones that are subject to RCRA authority for ongoing waste management activities. “Unregulated” SWMUs resulted from past management practices that were not subject to RCRA until the provisions shown on the slide were enacted as a part of HSWA.

### Unregulated SWMUs (cont'd)

- Corrective action requirements are imposed through the *permit* or, for interim-status facilities, an enforcement order.
- Permits must contain schedules of compliance to address releases.
- Corrective action efforts around the country may encompass thousands of TSDFs.



The RCRA corrective action process is similar to that under CERCLA. The four RCRA corrective action components are discussed below:

***RCRA Facility Assessment (RFA)***: The major objectives of the RFA are to identify SWMUs and collect existing information on contaminant releases and to identify releases or suspected releases needing further investigation. The findings of the RFA will result in one or more of the following actions:

- No further action under the RCRA corrective action program is required because no evidence of a release or suspected release was identified.
- A ***RCRA Facility Investigation (RFI)*** by the facility owner or operator is required where the information collected indicates a release or suspected release.
- ***Interim corrective measures*** by the owner or operator are required where the regulatory agency believes that expedited action should be taken to protect human health or the environment.
- In cases where problems associated with permitted releases are found, the regulatory agency will refer such releases to the appropriate permitting authorities.

***RFI***: If the RFI is necessary, the investigation will be carried out by the owner or operator under a permit schedule of compliance or under an enforcement order. The RFI can range widely from a small specific activity to a complex multimedia study. The RFI step also includes interpretation by the regulatory agency of release characterization data against established health and environmental criteria to determine whether a ***Corrective Measures Study*** is necessary. Finally, the RFI step also allows for ***interim corrective measures*** if a threat or exposure to hazardous constituents is identified. Both the owner/operator and the regulatory agency have a continuing responsibility to respond to emergency situations.

***Corrective Measures Study (CMS)***: During this step the owner or operator will identify and recommend as appropriate specific measures that will correct the release. Information generated during the RFI will be used not only to determine the potential need for corrective measures, but also to aid in the selection and implementation of corrective measures.

***Corrective Measures Implementation (CMI)***: This step includes designing, constructing, operating, maintaining, and monitoring selected corrective measures. If the remedy is not properly implemented, EPA will direct the facility to take additional action on a site-specific basis.

### **Corrective Action Components Similar to CERCLA**

<b>RCRA</b>	<b>CERCLA</b>
• RCRA Facility Assessment	• <b>Preliminary Assessment/</b>
• RCRA Facility Investigation	• <b>Site Investigation</b>
• Corrective Measures Study	• Remedial Investigation
• Permit Modification	• Feasibility Study
• Corrective Measures Implementation	• Record of Decision
	• Remedial Design/Remedial Implementation

The slide above shows *correspondence between RCRA and CERCLA processes*.

## Where Does All This Lead?

- RCRA imposes requirements for cleanup that could apply to CERCLA wastes.
- RCRA and CERCLA do not replace each other.
- RCRA, CERCLA, and closure can all apply.
- Therefore, RCRA corrective action can contribute to uncertainty over which agency is in the lead and which requirements must be met.

This uncertainty is usually addressed in *federal facility agreements* that delineate responsibility for different areas of concern among different authorities.



An Oak Ridge Example,  
Waste Area Grouping (WAG) 6,  
Or How Corrective Action Poses Conflicts for  
Radioactive Mixed Waste (RMW) Cleanups





## WAG 6 History

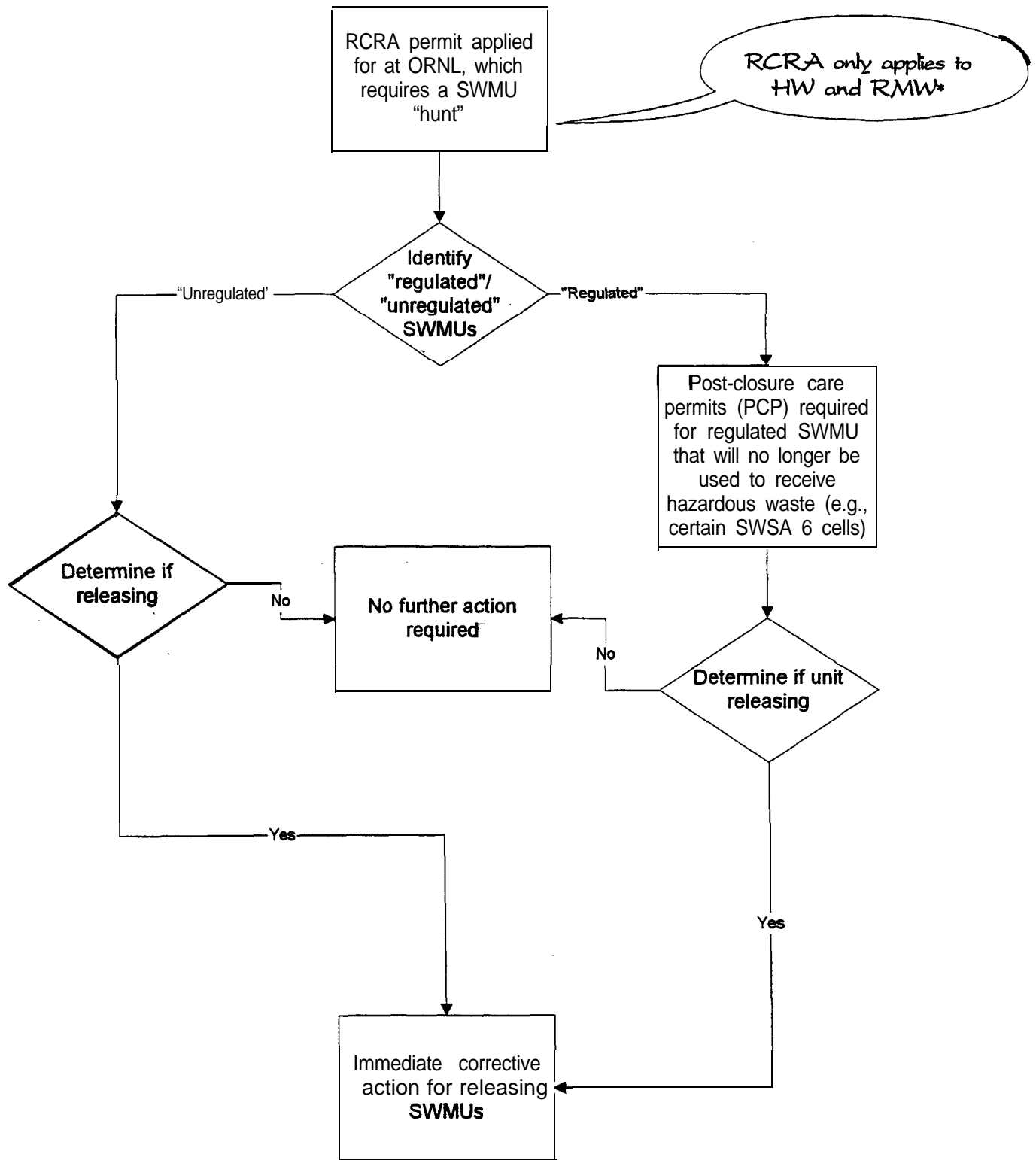


- ORNL applies for a RCRA permit, early 1980s.
- SWMU hunt required.
- SWMUs classified as (1) releasers or (2) nonreleasers.
- Post-closure care permit (PCP) required for all regulated HWMU (e.g., some cells in WAG 6).





## Waste Area Grouping 6 And RCRA Process



\*HW means hazardous waste. RMW means the hazardous waste component of radioactive mixed waste.



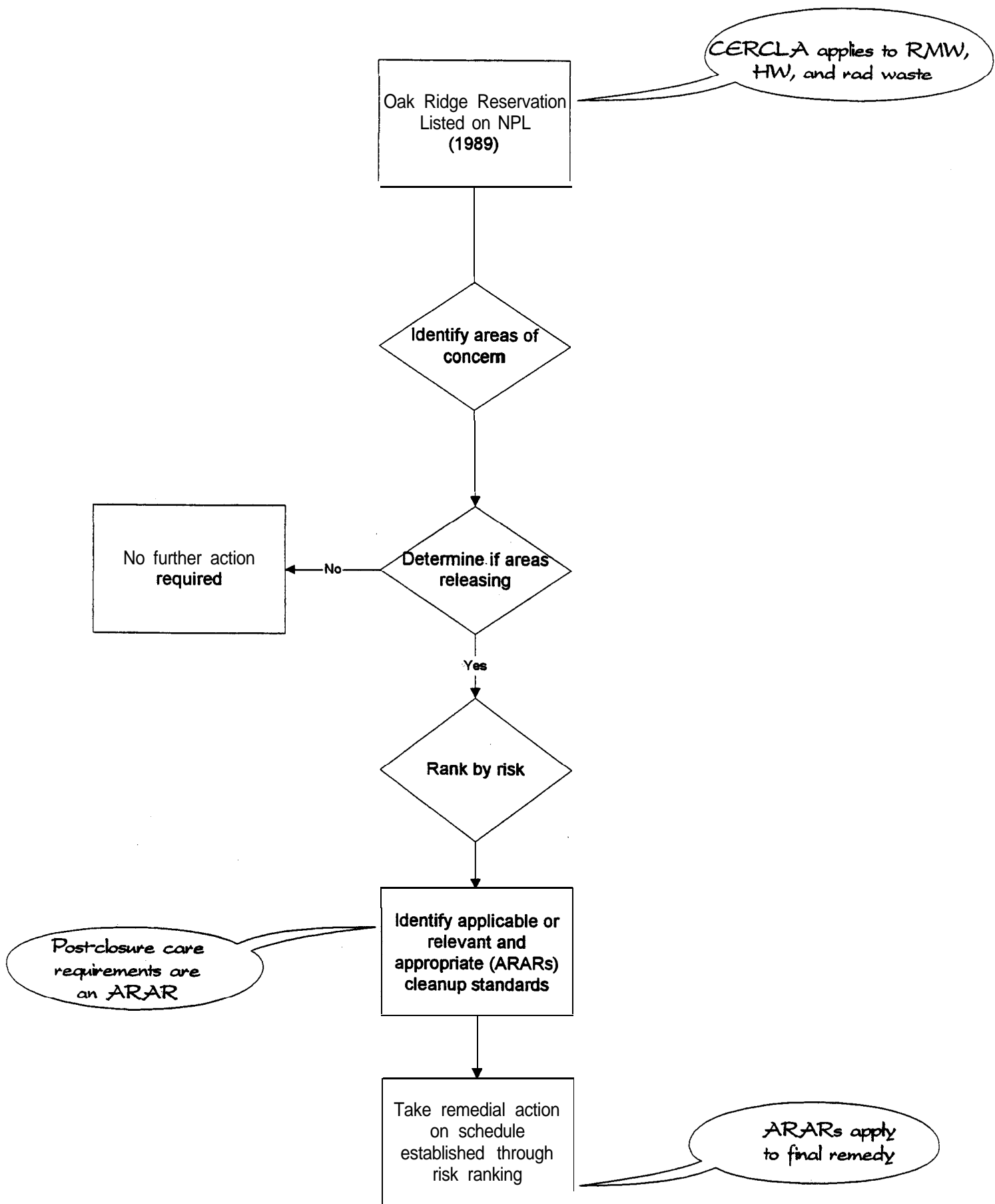
## WAG 6 History (cont'd)



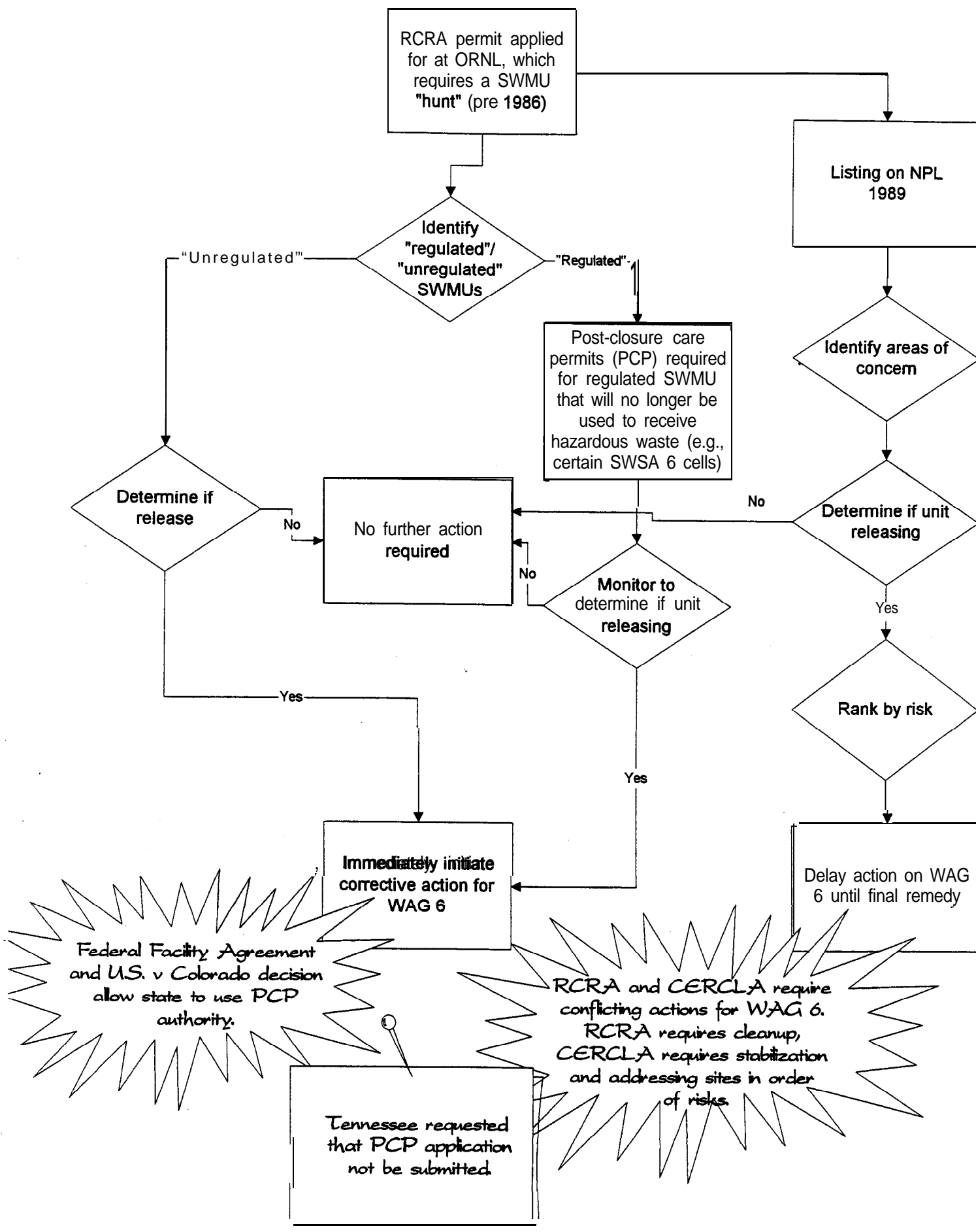
- PCP requires corrective action if specified limits exceeded.
- Limits likely to be specified are exceeded.



## Waste Area Grouping 6 And CERCLA Process



# Waste Area Grouping 6 And RCRA/CERCLA Conflict



## Summary

- RCRA imposes requirements for cleanup of releases from regulated hazardous waste management units.
- RCRA also imposes corrective action requirements for unregulated units on a permitted facility.
- RCRA cleanup follows a similar procedural path as CERCLA, but decisions are documented in a permit.
- Thus, RCRA, CERCLA, and closure potentially apply to RMW cleanup.

You should now be aware of the applicability of RCRA corrective action requirements:

- to permitted, regulated SWMUs and
- unregulated SWMUs on a facility that is obtaining a permit.

You should recognize the steps required to implement corrective action:

- *RFA*,
- *RFI*,
- *CMS*, and
- *CMI*.

Corrective action requirements are documented in a permit.

You should be aware that RCRA closure may also apply, despite the fact that the HWMU never received a permit. Managing waste in an unpermitted unit after the effective date of applicable hazardous waste management requirements subjects the unit to closure requirements.

Last, if the unpermitted HWMU cannot be decontaminated to meet RCRA *clean-closure* standards, a *post-closure care permit* is required. Corrective action may be triggered by release of constituents during the *post-closure care period*.

## Self-Assessment Questions: Corrective Action Module

### I. Circle the correct answer(s).

1. The following features distinguish between a regulated solid waste management unit (SWMU) and an unregulated SWMU:
  - a. In use before July 26, 1982
  - b. Permitted facility
  - c. Continuous release or disposal site
  - d. Active use
2. What features are common to both permitted and unpermitted hazardous waste management units:
  - a. Corrective action may be required
  - b. Compliance with groundwater protection standards
  - c. Closure
  - d. Both are regulated SWMUs
3. Unregulated solid waste management units may be subject to:
  - a. Corrective action for past releases
  - b. Corrective action beyond facility boundary
  - c. Exemption from RCRA
  - d. Corrective action if part of an interim-status facility
4. Which of the following findings could result from a RCRA Facility Assessment:
  - a. No further action is required
  - b. A problem with a permitted release is referred to the permitting authority
  - c. A RCRA Facility Investigation is required
  - d. Expedited action to protect human health is required

### II. Complete the statement.

1. List four steps required to implement corrective action.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
2. Expedited actions during a corrective measure required by the regulatory agency to be taken by the owner/operator in order to protect human health or the environment are referred to as \_\_\_\_\_.
3. List the permit that is required if a unpermitted hazardous waste management unit cannot be decontaminated to meet RCRA clean closure standards: \_\_\_\_\_.

## Self-Assessment Questions: Corrective Action Module

### III. Complete the Matching Set

- |  |  |
|--|--|
| <input type="checkbox"/> 1. RCRA Facility Assessment           | a. Preliminary Assessment/Site Investigation           |
| <input type="checkbox"/> 2. Corrective Measures Implementation | b. Remedial Investigation                              |
| <input type="checkbox"/> 3. RCRA Facility Investigation        | c. Record of Decision                                  |
| <input type="checkbox"/> 4. Corrective Measures Study          | d. Feasibility Study                                   |
| <input type="checkbox"/> 5. Permit Modification                | e. Remedial Design/Remedial Implementation             |
|  | f. Applicable or relevant and appropriate requirements |
|  | g. Identification of Areas of Concern                  |

### IV. True/False

1. ☐ RCRA closure can apply to a hazardous waste management unit that never received a permit.
2. ☐ CERCLA preempts and replaces RCRA at a radioactive mixed waste cleanup site.
3. ☐ Federal facility agreements are used to delineate different areas of concern among the different regulatory authorities.

## Self-Assessment Answers: Corrective Action Module

### I. Circle the correct answer(s).

1. The following features distinguish between a regulated solid waste management unit (SWMU) and an unregulated SWMU:  
**a. In use before July 26, 1982** [See p. CA-3]      c. Continuous release or disposal site  
b. Permitted facility      d. Active use
2. What features are common to both permitted and unpermitted hazardous waste management units:  
**a. Corrective action may be required**      c. Closure [See p. CA-4]  
[See p. CA-4]  
**b. Compliance with groundwater protection standards** [See p. CA-4]      d. Both are regulated SWMUs [See p. CA-4]
3. Unregulated solid waste management units may be subject to:  
**a. Corrective action for past releases** [See p. CA-5]      c. Exemption from RCRA  
**b. Corrective action beyond facility boundary** [See p. CA-5]      d. Corrective action if part of an interim-facility [See p. CA-5]
4. Which of the following findings could result from a RCRA Facility Assessment:  
**a. No further action is required** [See p. CA-7]      c. A RCRA Facility Investigation is required [See p. CA-7]  
**b. A problem with a permitted release health is referred to the permitting authority** [See p. CA-7]      d. Expedited action to protect human is required [See p. CA-7]

### II. Complete the statement.

1. List four steps comprising corrective action.  
**a. RCRA Facility Assessment**      c. RCRA Facility Investigation  
**b. Corrective Measures Study**      d. Corrective Measures Implementation  
[See pp. CA-7 to CA-8]
2. Expedited actions during a corrective measure required by the regulatory agency to be taken by the owner/operator in order to protect human health or the environment are referred to as **interim corrective measures**. [See p. CA-7]
3. List the permit that is required if an unpermitted hazardous waste management unit cannot be decontaminated to meet RCRA clean closure standards: **post-closure care permit** [See p. CA-4].



## Self-Assessment Answers: Corrective Action Module

### III. Complete the Matching Set

- |   |  |
|---|--|
| <u><b>a</b></u> 1. RCRA Facility Assessment           | a. Preliminary Assessment/Site Investigation           |
| <u><b>e</b></u> 2. Corrective Measures Implementation | b. Remedial Investigation                              |
| <u><b>b</b></u> 3. RCRA Facility Investigation        | c. Record of Decision                                  |
| <u><b>d</b></u> 4. Corrective Measures Study          | d. Feasibility Study                                   |
| <u><b>c</b></u> 5. Permit Modification                | e. Remedial Design/Remedial Implementation             |
|   | f. Applicable or relevant and appropriate requirements |
|   | g. Identification of Areas of Concern                  |
- [See p. CA-9]

### IV. True/False

1. **T** RCRA closure can apply to a hazardous waste management unit that never received a permit. [See p. CA-4]
2. **F** CERCLA preempts and replaces RCRA at a radioactive mixed waste cleanup site. [See p. CA-13]
3. **T** Federal facility agreements are used to delineate different areas of concern among the different regulatory authorities. [See p. CA-10]

**CORRECTIVE ACTION MODULE**  
**STATUTORY-REGULATORY CITATION/KEY WORD INDEX**

**Statutory/Regulatory Citations**

<b><u>Citation(s)</u></b>	<b><u>Page Number(s)</u></b>
40 CFR 264.92 .....	CA-4
40 CFR 264.100. ....	CA-4
40 CFR Part 264, Subpart F .....	CA-4
40 CFR Part 265.1(b) .....	CA-4
40 CFR 270.14 .....	CA-4
RCRA Section 3004(u) .....	CA-5
RCRA Section 3004(v) .....	CA-5
RCRA Section 3008(h) .....	CA-5

**Alphabetical Listing**

<b><u>Key Word(s)</u></b>	
CERCLA .....	CA-2, CA-7, CA-9, CA-10, and CA-13
Corrective action .....	CA-2 to CA-7, C-9, CA-10, and CA-15
Corrective measures implementation (CMI) .....	CA-7 to CA-9 and CA-15
Corrective measures study (CMS) .....	CA-7 to CA-9 and CA-15
Enforcement order .....	CA-6 and CA-7
Federal facility agreements .....	CA-10
Groundwater monitoring .....	CA-4
Hazardous waste management unit (HWMU) .....	CA-3 to CA-5 and CA-15
Interim corrective measures .....	CA-7
Interim status facility .....	CA-6
Lagoon .....	CA-3
Land treatment unit .....	CA-3
Landfill .....	CA-3
Monitoring .....	CA-4
Owner/operator .....	CA-3
Permit .....	CA-3 to CA-7 and CA-15
Permit modification .....	CA-9
Post-closure care .....	CA-12 and CA-15
Post-closure care permit .....	CA-4 and CA-12 to CA-15
RCRA Facility Assessment (RFA) .....	CA-7, CA-9, and CA-15
RCRA Facility Investigation (RFI) .....	CA-7, CA-9, and CA-15
Release or suspected release (of hazardous substance) .....	CA-7
Schedule of compliance .....	CA-6 to CA-7
Solid waste management unit (SWMU) .....	CA-3 to CA-7, CA-12, and CA-15
Surface impoundment .....	CA-3
Tank .....	CA-3
Treatment, storage, or disposal facility (TSDF) .....	CA-3 and CA-6
Waste pile .....	CA-3

### Corrective Action Module Cross-Links

Module Page/Line	Cross-Link Language	Resource/Document
CA-3/Notes, Line 1	“RCRA Permit”	Types of RCRA Permits, DOE/EH-413/9715; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permits.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permits.pdf</a>
CA-3/Notes, Line 7	“SWMU”	RCRA Facility Assessments, DOE/EH-231-014/0794; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf</a>
CA-4/Slide, Line 1	“Corrective Action”	RCRA Corrective Action Program Guide (Interim), DOE/EH-0323; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/program/progrm_all.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/program/progrm_all.pdf</a>
CA-4/Notes, Line 2-3	"groundwater monitoring program"	Ground-Water Monitoring Under RCRA, DOE/EH-231-039/1193; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/monitor.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/monitor.pdf</a>
CA-4/Notes, Line 8	"corrective action under 40 CFR 264.100"	RCRA Corrective Action Permit Requirements and Modifications under Subpart F Regulations, DOE/EH-231-022/0793; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/modif.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/modif.pdf</a>
CA-4/Notes, Line 12	“Unpermitted HWMU”	RCRA Ground Water Assessment Plans and Annual Ground Water Quality Assessment Reports at Interim Status Facilities, DOE/EH-413-069/0396; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/gw/waterreg.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/gw/waterreg.pdf</a>
CA-4/Notes, Line 17	"close the unit"	Closure of Hazardous and Mixed Waste Management Units at DOE Facilities, DOE/EGD(RCRA)-002/0690 [NOT available on the OEPA Website]
CA-4/Notes, Line 18	“decontaminated”	RCRA Clean Closure Equivalency Demonstrations, DOE/EH-231-010/1291; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/equivdem.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/equivdem.pdf</a>
CA-4/Notes, Line 19	"post-closure care permit"	RCRA Corrective Action and Closure, DOE/EH-231-051/0295; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/closur.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/closur.pdf</a>
CA-5/Notes, Line 1	“HSWA”	OEPA Environmental Law Summary: Resource Conservation and Recovery Act; <a href="http://tis-nt.eh.doe.gov/oepa/law_sum/RCRA.HTM">http://tis-nt.eh.doe.gov/oepa/law_sum/RCRA.HTM</a>
CA-5/Notes, Lines 4-5	“regulated and unregulated”	RCRA Corrective Action Definitions Under Subpart F and Proposed Subpart S, DOE/EH-231-044/0394; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/definit.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/definit.pdf</a>

CA-6/Slide, Line 3	"permit"	RCRA Permitting Guide for Hazardous and Radioactive Mixed Waste Management Facilities, DOE/EH(RCRA)9705; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit_a.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit_a.pdf</a>
CA-7/Notes, Line 3	"RCRA Facility Assessment (RFA)"	RCRA Facility Assessments, DOE/EH-231-014/0794; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf</a>
CA-7/Notes, Line 9	"RCRA Facility Investigation (RFI)"	RCRA Facility Investigation, DOE/EH-231-046/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf</a>
CA-7/Notes, Line 11	"interim corrective measures"	RCRA Corrective Action Interim Measures Under the Proposed Subpart S Rule, DOE/EH-231-024/0793; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/interim.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/interim.pdf</a>
CA-7/Notes, Line 16	"RFI"	RCRA Facility Investigation, DOE/EH-231-046/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf</a>
CA-7/Notes, Line 20	"Corrective Measures Study"	RCRA Corrective Action Corrective Measure Study, DOE/EH-231-047/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf</a>
CA-7/Notes, Line 21	"interim corrective measures"	RCRA Corrective Action Interim Measures Under the Proposed Subpart S Rule, DOE/EH-231-024/0793; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/interim.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/interim.pdf</a>
CA-8/Notes, Line 1	"Corrective Measures Study (CMS)"	RCRA Corrective Action Corrective Measure Study, DOE/EH-231-047/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf</a>
CA-8/Notes, Line 5	"Corrective Measures Implementation (CMI)"	RCRA Corrective Action Corrective Measures Implementation, DOE/EH-231-048/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/implemen.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/implemen.pdf</a>
CA-9/Slide, Lines 1-2	"Corrective Action Components Similar to CERCLA"	A Comparison of the RCRA Corrective Action and CERCLA Remedial Action Processes, DOE/EH-0365; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/rcracomp.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/rcracomp.pdf</a>
CA-9/Slide, Lines 4-5	"Preliminary Assessment"	Preliminary Assessments (PAs) Under CERCLA, DOE/EH-231-016/0593; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/cercla/pa.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/cercla/pa.pdf</a>
CA-9/Slide, Line 6	"Site Investigation"	Site Inspections (SIs) Under CERCLA, DOE/EH-231-013/0693; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/cercla/si.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/cercla/si.pdf</a>
CA-9/Notes, Line 1	"correspondence between RCRA and CERCLA processes"	A Comparison of the RCRA Corrective Action and CERCLA Remedial Action Processes, DOE/EH-0365; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/rcracomp.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/rcracomp.pdf</a>
CA-10/Notes, Line 1	"federal facility agreements"	Selected EM Cleanup and Compliance Agreements, <a href="http://www.em.doe.gov/ffaa/index.html">http://www.em.doe.gov/ffaa/index.html</a>

CA-12/Slide	“post-closure care permits (PCP)”	RCRA Post-Closure Permits, DOE/EH-231-021/0593 [NOT available on OEPA Website]
CA-15/Slide	“applicable or relevant and appropriate (ARARs)”	OEPA Focus Area ARAR Website; <a href="http://tis-nt.eh.doe.gov/oepa/arars/">http://tis-nt.eh.doe.gov/oepa/arars/</a>
CA-17/Notes, Line 6	"RFA"	RCRA Facility Assessments, DOE/EH-231-014/0794; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/assess.pdf</a>
CA-17/Notes, Line 7	"RFI"	RCRA Facility Investigation, DOE/EH-231-046/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/invest.pdf</a>
CA-17/Notes, Line 8	"CMS"	RCRA Corrective Action Corrective Measure Study, DOE/EH-231-047/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/study.pdf</a>
CA-17/Notes, Line 9	"CMI"	RCRA Corrective Action Corrective Measures Implementation, DOE/EH-231-048/1194; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/implemen.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/implemen.pdf</a>
CA-17/Notes, Line 16	“clean closure”	RCRA Clean Closure Equivalency Demonstrations, DOE/EH-231-010/1291; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/equivdem.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/equivdem.pdf</a>
CA-17/Notes, Line 16	“post-closure care permit”	RCRA Permitting Guide for Hazardous and Radioactive Mixed Waste Management Facilities, DOE/EH(RCRA)9705; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit_a.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/permit_a.pdf</a>
CA-17/Notes, Lines 17-18	“post-closure care period”	RCRA Corrective Action and Closure, DOE/EH-231-051/0295; <a href="http://tis-nt.eh.doe.gov/oepa/guidance/rcra/closur.pdf">http://tis-nt.eh.doe.gov/oepa/guidance/rcra/closur.pdf</a>